T E C H N I C A L M E M O R A N D U M

Utah Coal Regulatory Program

June 30, 2005

TO: Internal File

THRU: D. Wayne Hedberg, Permit Supervisor

FROM: James D. Smith, Environmental Scientist, Team Lead

RE: Replacement of Volume 11 (RILDA Canyon Facilities), PacifiCorp, Deer Creek Mine, C/015/0018, Task ID #2266

SUMMARY:

In 1997 the Permittee, PacifiCorp, received approval to expand its mining operations into the North Rilda Area in and adjacent to Rilda Canyon. In 1999, the Mill Fork Tract added 5,562 .82 acres to the Deer Creek Mine permit. Mining expansion into the North Rilda and Mill Fork tracts was anticipated early in the permitting process, and because of this, the North Rilda and Mill Fork areas were included in many of the baseline studies and on many of the mine permit maps prior to their incorporation into the MRP.

The Permittee evaluated long-term options to improve access to the coal reserves in the Mill Fork tract. Options considered were:

- Acquisition of Crandall Canyon Mine;
- New portal facilities in Mill Fork Canyon; and
- New portal facilities in Rilda Canyon.

The Permittee and Andalex Resources were unable to arrive at an agreement that would allow utilization of the Crandall Canyon Mine

From extensive investigation, including in-seam horizontal drilling, the Permittee selected new portals facilities in Rilda Canyon as the best option. Initially, the facilities were proposed in an area disturbed by previous mining operations; however, due to concerns related to culverting approximately 1,500 feet of the perennial stream, the Permittee chose to move the proposed facility site up-canyon approximately 1/2 mile.

The proposed North Rilda Canyon Portal surface facilities will be located just below the intersection of the Right and Left Forks of Rilda Canyon. The proposed Rilda Canyon facilities are designed to minimize surface disturbance, covering approximately 13.1 acres, 9.0 acres at the portal area and two separate soil storage areas covering 3.0 acres and 1.1 acres. This will bring the total disturbed area of the Deer Creek Mine to 97.44 acres.

Underground access from the North Rilda Canyon Portal Facilities will be through two rock slopes through the Spring Canyon Member of the Star Point Sandstone. There will be two separate surface breakouts located near the intersection of the Right and Left Forks of Rilda Canyon, one for a mine fan and another for intake access. The slopes will connect with extensions of the 1st Right Submains in the Hiawatha Seam. Excavated material from the slopes, mainly sandstone, will be stored within the mine.

Permittee's Action	Dated	DOGM's Action	Dated
Original submittal	11/04/2003	Assigned Task # 1766	
		ACR Determination-incomplete	12/29/2003
		Additional ACR information	02/04/2004
Withdrawal of amendment	08/20/2004		
		Returned to Permittee without TA	08/23/2004
Complete revision submitted	09/02/2004	Assigned Task # 2032	
		Tech Memo	10/13/2004
		ACR Determination	10/21/2004
		TA	10/21/2004
E-mail requesting withdrawal of amendment.	12/07/2004		
		Returned to Permittee	12/08/2004
New submittal	12/17/2004	Assigned Task # 2093	12/21/2004
		ACR Determination	02/28/2005
		Tech Memo	02/28/2005
		Deficiencies Letter	03/01/2005
Response to Task # 2093	04/01/2005	Assigned Task # 2195	
		Tech Memo	05/05/2005
		Deficiencies Letter	05/10/2005
Response to Task # 2195	05/31/2005	Assigned Task # 2266	

		Tech Memo	06/30/2005

Surface facilities in Rilda Canyon include the existing mine fan in the Left Fork of the canyon. Surface related facilities at the proposed North Rilda Canyon Portal Facilities include a bathhouse/office/warehouse, underground vehicle parking garage, fuel dock, water and sewer stations, rock dust silo, employee parking area, fan, sediment pond, covered and open storage area.

Coal will continue to be shipped through the existing Deer Creek mine workings to the portal in Deer Creek Canyon, from where it will be transported to the Huntington Power Plant coal storage area via the existing overland beltline. Surplus production, in excess of what the Huntington Plant requires, will continue to be trucked from the plant on State Highway 31.

There were no deficiencies in the Hydrology and Geology Tech Memo of May 5, 2005. The USFS has, however, expressed concerns that the culverts diverting undisturbed flow through the site are not adequately sized.

OPERATION PLAN

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

Analysis:

Because they will be reclaimed, all sediment control structures at this site are considered temporary under the Coal Mining Rules.

Diversions: Miscellaneous Flows

Small, ephemeral, undisturbed drainages at the Rilda Canyon portal facilities, on the south-facing slope of North Rilda Ridge, will report to Rilda Creek through a series of culverts passing beneath the facility (Volume 11, Section R645-301-742.330). Watershed runoff calculations and culvert and ditch design calculations in Appendix B were done using 10-yr, 6-hr (1.55 in), 25-yr, 6-hr (1.88 in), 100-yr, 6-hr (2.07 in), and 10-yr, 24-hr (2.45 in) Precipitation Frequency Estimates (Volume 11, Appendix B, Section 2.1, Precipitation). Ditches and culverts have been sized to pass the 10-yr, 24-hour event rather than the smaller 2-yr, 6-hr (1.04 in) event

required by the R645 Rules for temporary diversion of miscellaneous flows. Culvert and ditch sizing information for the undisturbed drainages is summarized in Tables 1 through 8 of Appendix B.

The USFS has expressed concern that the culverts will be in place for the life-of-mine, which may be several decades, but are considered temporary structures under the R645 Coal Rules. By using the 10-yr, 24-hr event, the Permittee's designs exceed not only the 2-yr, 6-hr requirement for temporary diversions of miscellaneous flows, but also the 10-yr, 6-hr requirement for permanent diversions of miscellaneous flows.

The USFS is also concerned about the increasing probability over time that a 10-year design event will be exceeded: there is a 0.96 probability that a 10-yr event will be equaled or exceeded over a 30-yr period, a 0.88 probability over a 20-yr period, and even a 0.65 probability it will be equaled or exceeded over the 10-yr design period. By using storm frequency and intensity as design criteria, the Rules implicitly acknowledge the risk that the design event will be equaled or exceeded. Equaling or exceeding the design event does not automatically mean diversions will fail, but diversions built to the standards in the Rules, and even those built to more stringent standards, risk not having capacity adequate to handle all storm events that occur during the life of the coal-mining operation. It is not feasible to build diversions with zero probability of failure. Designs for the Rilda Canyon portal facility diversions are based on peak runoff from storm events larger than what is stipulated in the Coal Mining Rules, and these diversions should be adequate to safely pass peak runoff from events much larger than those anticipated by the Coal Mining Rules.

Short duration, high intensity events have the potential of producing high volumes of runoff in a short period of time. Even though precipitation from a 1-hr event will typically be 60 percent or less of that from a corresponding 24-hr event, peak discharge can be considerably larger because the runoff is concentrated into a shorter time period. By overdesigning the diversions, the Permittee has lessened, although not completely eliminated, the possibility of a short-duration event overloading the diversions.

The Permittee will protect approaches to culvert inlets with riprap. Trash racks will be installed over culvert inlets to keep out debris, and the trash racks will be ramped, which will facilitate debris being swept away from the inlet rather than accumulating at the opening. The trash racks will be cleared on a routine schedule and after storm events (Section 2.9, Culverts).

The Division has authority to specify additional design criteria for diversions to meet the requirements of the Rules (R645-301-742.314) and local, state, and federal regulations and rules (R645-301-312.4). The Permittee designed the diversions meet or exceed the requirements of the R645 Rules. The USFS has expressed concerns based on general concepts, but has provided no solid criteria for requiring more robust designs. The Division's position is that without a solid scientific, engineering, or legal basis, mandating more stringent design standards would be

arbitrary and capricious, especially at this point in the permitting process and considering the Permittee has already voluntarily sized the diversions to standards above those dictated by the Rules.

NOTE: except for the 100-yr, 6-hr event, the estimated Precipitation Frequency values used by the Permittee are larger than corresponding values referenced by the USFS in their June 3, 2005 letter to Daren Rasmussen at the Utah Division of Water Rights re: the Permittee's application for a stream alteration permit. The 10-yr, 24-hr event used by the Permittee for diversion designs is larger than the 100-yr, 6-hr event cited by the USFS.

	Permittee	USFS	% Permittee > USFS
2-yr, 6-hr	1.04	0.95	9 %
10-yr, 6-hr	1.55	1.36	14 %
10-yr, 24-hr	2.45	2.01	22 %
25-yr, 6-hr	1.88	1.62	16 %
25-yr, 24-hr	2.92	2.35	24 %
100-yr, 6-hr	2.07	2.16	-8 %
100-yr, 24-hr	3.29	2.87	15 %

RECOMMENDATIONS:

The application is recommended for approval at this time.